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When and How Shall I Plant My Corn?

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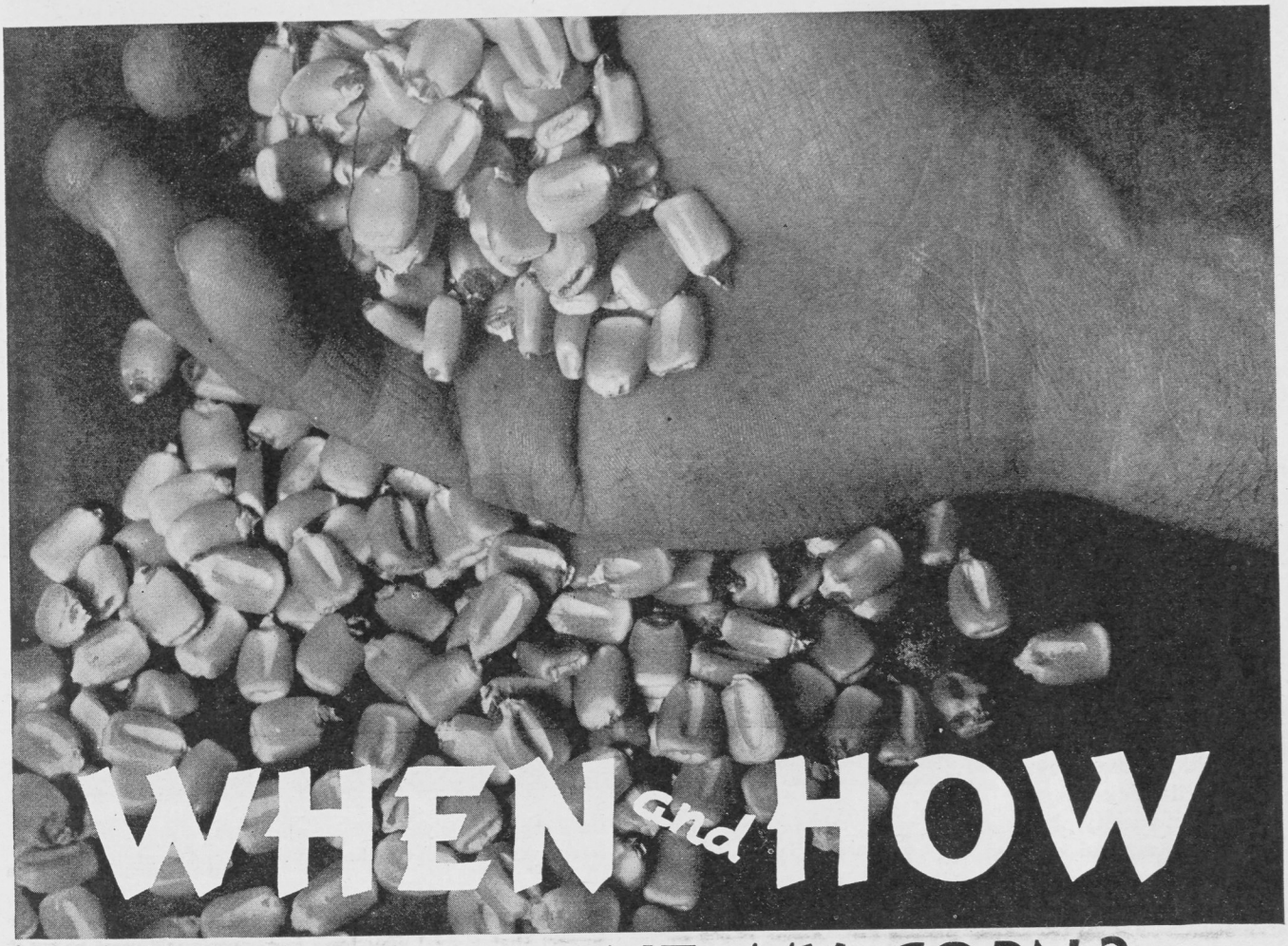

WHEN and HOW SHALL I PLANT MY CORN?

For Five Years Early and Late Varieties Were Planted at Three Dates at Five Rates, Checked and Drilled

By JOE L. ROBINSON*

WHEN AND HOW you plant your corn is going to have a lot to do with how many bushels roll into your crib next fall. It will make a difference in how much moisture the corn contains, too.

One of these springs, as in years gone by, a lot of Iowa farmers are going to be forced to plant some or all of their corn late because their partner, Mr. Weather Man, has not cooperated. Many a farmer then will wonder: "Shall I plant the corn adapted to my region—the one that normally gives me the best yield and satisfactory quality—and run the risk of soft corn, or would it be better this year to get some early corn and resign myself to a smaller yield, but be more certain of the corn maturing? Could I step up the yield of that smaller, earlier corn to somewhere near the yield of the variety adapted to my section by planting the earlier corn thicker than usual?"

The experiments reported here were conducted to help us answer questions such as these.

Another question which we had in mind when these experiments were started was: What will be the result if eventually we are forced to plant our corn 1 or 2 weeks late in order to avoid trouble with the European corn borer? Although contour farming was not so widely talked about or practiced at the time the experiments were started or while they were in progress, yet they offer information about the effect on yield, ear size, maturity and other points when corn is drilled as compared with it checked.

We carried on these experiments during a 5-year period, 1928 to 1932, using two early varieties of open-pollinated corn (Wisconsin 25 and Golden King) and one late variety (Krug), which requires a full, normal season to mature. In each of the 5 years, the three varieties were planted at five different rates, in both checked and drilled rows, and at three different dates—the normal time for planting (May 10 to 13 in the various years), late (around June 1) and very late (June 14 to 21). These experiments, which were carried on at the Agronomy Farm at Ames, showed the following results:

1. Drilled corn consistently outyielded checked corn more than

*A. A. Bryan, formerly in charge of corn breeding work at the Iowa Agricultural Experiment Station, collaborated in the conduct of the experiment reported here. Dr. Bryan died in February, 1939.

2½ bushels to the acre.

2. The early varieties when planted 2 weeks late (June 1) yielded the same as when planted at the normal date in May. The variety which required a full season to mature yielded 8 percent less when planted 2 weeks after the normal time. When planted a month late (around June 15), the yields dropped for both the early and full-season varieties, but the late variety showed the heaviest reduction.

3. The full-season variety produced its maximum yield with 3 or 4 plants to the hill; the early varieties yielded most with 4, 5 or 6 plants to the hill.

4. Early varieties that were planted late did not yield as much—even if planted thick—as the full-season variety planted at the normal date.

5. The early varieties had about the same amount of moisture at harvest time regardless of how thick they were planted, but the late variety increased in moisture content as the thickness of stand increased. The moisture content of the late variety went up particularly with thicker stands when planted late.

6. Drilled and checked corn were about the same in moisture content for the early varieties, but the late variety when planted late and thick had more moisture in the checked than in the drilled rows.

7. The ears of the drilled corn averaged a bit heavier than those of the checked. Ear weight consistently decreased as the rate of planting increased.

8. The percentage of perfect stand at harvest was not affected by the date of planting, but it decreased as the rate of planting increased.

In order to make certain that the right number of plants were present, two more kernels were planted in each hill than were to be left to maturity. For example, in the 4-plant rows we planted 6 kernels per hill in the checked rows. Then when the plants were 6 to 8 inches high, they were thinned to the desired number. In earlier experiments we had found that planting 4 kernels to the hill resulted in an average of slightly more than 3 plants to the hill at harvest. Even with good seed in the average season, one will find he needs to plant a few more kernels than he hopes to have of plants at harvest time.

Some of our earlier experiments indicated that on the average 5 kernels of corn in northern Iowa gave the largest yield, while 3 kernels gave the most in southern Iowa.

The early varieties which we used in these experiments yielded most when planted at the rate of 4, 5 or 6 plants to the hill, and the full-season variety produced the most with 3 or 4 plants to the hill.

Drilled Corn First

In drilled rows, 2 kernels were planted at each place where 1 plant was desired. Later the corn was thinned to equivalents of 2, 3, 4, 5 and 6 kernels in checked rows in order to compare checked and drilled plantings with exactly the same number of plants per acre.

All the varieties produced significantly larger yields when drilled than the same number of plants in checked rows.

Apparently the more uniform distribution of the plants in drilled rows enables them to use the moisture and available plant food better than when grouped together in hills. The approximate yields of the various varieties were as follows: Wisconsin 25—37¼ bushels to the acre checked, 40 bushels drilled; Golden King—47¼ bushels checked, 49¾ bushels drilled; Krug—48½ bushels checked, 51 bushels drilled.

We do not feel that these results warrant the conclusion that drilling will always give the largest yield. In our tests the corn was grown on land where weed control was not a serious problem. Corn is checked by most farmers so that they can cultivate it both ways and get rid of the weeds. If weeds are a severe problem and are not controlled, they might easily offer sufficient competition to the corn to reduce the yield more than crowding into hills would do. The increased yield from the drilled corn in our tests probably was not large enough to cover the additional cost of weed control where the infestation is heavy. We believe that checking corn is best where weed control is a major problem, provid-

ing drilling is not necessary, as in contour farming.

The yields were all figured on the same basis—15 percent of moisture in shelled corn. On this basis, the full-season, adapted corn outyielded the early corn even if the early corn was planted thicker than usual. This was true when the corn was planted at the normal time, but when planting was delayed, then the early varieties came nearer to or even passed the late variety. The early varieties yielded about the same when planted any time from about May 12 to June 1, but when the late variety was planted around June 1, the yield was about 5 bushels less than when planted normally in May.

When planting was delayed until June 15, the early varieties dropped in yield about 5 to 10 bushels; the late variety yielded about 15 bushels less than when planted at the normal time. These figures are shown in the accompanying table.

One often hears someone say that he prefers 2 stalks to every hill with good sized ears. Still others think that smaller ears and more of them are preferable. In our tests the largest yields with Wisconsin 25 (the earliest of the two early varieties) were with 4, 5 or 6 plants to the hill, which on the farm would require planting approximately *one more kernel* in each case to get *the desired number of plants*. Golden King yielded best with 3, 4 or 5 plants to the hill. Six plants proved much better than two. When the late variety, Krug, was planted, 3 or 4 plants to the hill were considerably best, 2 next best, followed in order by 5 and 6.

With the early varieties which we used, planting any time up to June 1 yielded corn which at harvest time was low enough in moisture so that it could have been sealed under the AAA specifications. But the moisture content of Krug jumped from about 24 percent to a trifle over 30 when planting was delayed from the normal time to June 1 and went on up to a little over 42 percent when the planting was a month late—around June 15. The early varieties had around 26 percent moisture when planted about the middle of June.

Ear Size—Yield

Most farmers would have little trouble deciding between a yield of 55 bushels with 30 percent moisture and a 53-bushel yield with only about 20 percent moisture. When we planted an early variety (Golden King) 2 weeks late, it yielded 53 bushels with 20 percent moisture; the full-season variety (Krug) planted at the same time had a yield of only 55 bushels with 30 percent moisture.

As might be expected the size of the ears dropped as planting was delayed. But we found that the two early varieties had about the same size ears whether planted at the normal time or 2 weeks late. This was not true with the late variety. In all three varieties the ears became smaller as the number of plants per hill was increased, but the yield did not follow in the same order. Higher yields were obtained with the early varieties when there were more plants to the hill even if the average ear was smaller. In all three varieties the ears were larger with drilled than with checked rows, even though the number of plants in an area was kept constant.

The shelling percentage dropped in all three varieties with the later plantings—earliest plantings in all instances shelled out best. The shelling percentage fell slightly as the number of plants per hill increased. We found a little higher shelling percentage in the drilled than in the checked corn with all three varieties as an average for the 5 years.

Our results agree with those of other investigators in showing that the percentage of a perfect stand at harvest decreased as the rate of planting increased. In other words, if you want a stand of 5 plants to the hill in northern Iowa or for an early strain planted late in southern Iowa, you must use more seed to allow for a higher percentage of loss of plants than would be needed

Drilled corn consistently outyielded the checked corn even when there were the same number of plants to the acre. The average increase obtained over checked corn was 2½ bushels to the acre.

Average Acre Yield in Bushels of Early and "Full-season" Varieties of Corn Planted at the Normal Time, Late and Very Late.

(Averages are for 5 years, 1928 to 1932)

Time of planting	Wisconsin 25	Golden King	Krug
Normal (May 10 to 13)	39.8	51.1	59.9
Late (June 1)	41.1	52.9	55.0
Very late (June 14 to 21)	35.0	41.8	34.4

if you planted for a stand of 3 plants to the hill.

One of the results of our tests which interested us was that the late variety tended to have more moisture at harvest with thicker stands regardless of when it was planted. This was not at all noticeable in the early varieties planted at the normal time and not nearly so noticeable as in the late variety when planted 2 weeks or a month late.

It seems that when plants are crowded together, either the crowding retards their development or else the ears do not dry as rapidly as with a thinner stand. In the late variety, planted in mid-June, the moisture content went up nearly 5 percent when there were 6 plants to the hill as compared with 2 plants. In the early varieties, the rise in moisture content at this time of planting was only about 1 percent.

Finally, this experiment seems to indicate that you cannot expect to get as large a yield from an early strain planted late at a thicker than normal rate as you can from an adapted variety planted at the normal time; but apparently you can step up the yield of an early variety by planting it a bit thicker than usual and you will run less risk of having soft corn if it must be planted late.

WHEN RENDERING LARD*

REMEMBER...

Use only fat from the back and leaf and trimmings from the shoulder, bacon and ham.

Remove skin from fat unless it is thoroughly clean.

Lean meat or blood on fat turns the lard dark in color and causes deterioration.

Perfectly clean containers and equipment is necessary because impurities cause lard to turn sour or rancid in a short time.

A gallon of water poured into the iron rendering kettle before the fat is added will hasten the early part of the rendering and will keep the pieces of fat from sticking to the sides of the kettle.

Heat fat to a temperature not higher than 245 degrees Fahrenheit.

Cook fat until cracklings turn light amber and bubbling stops.

Cook the fat enough to remove all the water—excess moisture causes lard to sour immediately.

Light, air or moisture may deteriorate stored lard—use tall containers which reduce exposed surfaces and use tight-fitting lids.

Allow lard to cool before fitting lids. Stirring lard while it cools gives it a smoother grain and a whiter color.

Store in small containers so that only a portion of the lard need be opened at a time.

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*(*Prepared by Fred J. Beard, assistant professor in the I.S.C. meat laboratory, and included in a bulletin, "Use Lard as a Household Fat," written by Dr. P. Mabel Nelson and Miss Belle Lowe, Nutrition Dept. Bulletin is available on request.)*

Cutting asparagus only until June 15 results in the largest yield, tests at the Iowa Station show. *Bulletin P6,* just off the press, at Ames, gives this and other results.

Test Soybean Seed

SOYBEAN SEED in Iowa this year is testing about 10 to 12 percent below normal, on the average. The average test of 257 samples in the Iowa State College Seed Laboratory at Ames is 83 percent, with some samples as low as 38 percent. Enough of the samples were low in test so that no farmer should plant soybean seed this year which has not been tested.

The stand of soybeans has a lot to do with the yield obtained. Thick stands are the ones that give the high yields, tests at the Iowa Station have shown. So if one finds that his seed is testing low, he should plant enough more seed to replace the dead ones.

If one cannot get his seed tested at a seed testing laboratory, then he can run a test at home. Dr. R. H. Porter, who is in charge of the Iowa State College Seed Laboratory, suggests using a cigar box, or a flat box of about that depth.

Fill the box about half full with sand. Place 100 soybean seeds on the sand and cover these with an inch of sand. Wet the sand with warm water. The sand needs to be soaked, but water should not be left standing. Place the box in a spot where the temperature will be around 70 to 80 degrees Fahrenheit. The sand during the test should never become dry.

The test can be read after 5 to 8 days. Normal sprouts are those that emerge with unbroken stems or seed parts and develop good roots. Hard seeds are those which have not changed appreciably. Most of these would eventually sprout under field conditions. Dead seeds usually decay in a few days.

If one adds the number with good sprouts to the number of hard seeds, this will give the viability figure from which the rate of seeding can be determined.

The normal viability of soybeans is around 95 percent. So if the germination test shows your seed to be only 75, divide 95 by 75 and multiply by the seeding rate you planned to use. If it was 2 bushels of seed to the acre, divide 95 by 75 and multiply by 2. This is the formula recommended by the Farm Crops Subsection of the Iowa Agricultural Experiment Station.